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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Tetsuro KAWAHARA, *et al.*

Appln. No.: 09/630,777

Group Art Unit: 1774

Confirmation No.: 8005

Examiner: Lawrence D. FERGUSON

Filed: August 2, 2000

Attorney Docket No.: Q60204

For: ARTICLE HAVING PHOTOCATALYTIC ACTIVITY

RESPONSE UNDER 37 C.F.R. § 1.111

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Please consider the remarks below in response to the Action mailed April 10, 2003.

Claims 1-2 and 4-9 are all the claims pending in the application.

The Action contains the following two prior art rejections, presented at paragraph Nos. 2-6 of the Action:

claims 1-2 and 4-6 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over published European Patent Application No. EP 0 901 991 ("EP '991") in view of U.S. Patent No. 5,547,823 to Murasawa, *et al.* ("Murasawa"); and

claims 7-9 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over EP '991 in view of Murasawa, and further in view of XP 002151982 ("XP '982") and EP 08 20 967 A1 ("EP '967").

Applicants respectfully traverse. The proposed combination of EP '991 and Murasawa does not teach or suggest each and every element of the claimed invention.

Handwritten signature and date 7/11/03

RESPONSE

U.S. Appl. No. 09/630,777

To establish a *prima facie* case of obviousness, the prior art references, when combined, must teach or suggest all the limitations of the claims (*see*, MPEP § 2143 and *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Claim 1 is the lone independent claim, and it is drawn to an article that has photocatalytic activity. The article comprises, *inter alia*, a primer layer comprising an n-type semiconductor film.)

The proposed combination of EP '991 and Murasawa does not teach or suggest a primer layer comprising an n-type semiconductor film. Therefore, the proposed combination of EP '991 and Murasawa does not teach or suggest each and every element of the claimed invention. OK

The Examiner agrees in the last line of the paragraph bridging pages 2 and 3 of the Action that EP '991 does not disclose a primer layer consisting essentially of at least one metal oxide selected from the group consisting of niobium oxide and zirconium oxide. The Examiner attempts to cure EP '991's deficiency by adding Murasawa as a secondary reference. Any metal

According to the Examiner, Murasawa discloses a first layer provided on a substrate and a second layer with photocatalytic activity on the first layer, wherein the first layer comprises zirconium oxide (the Examiner refers to column 5, lines 4-18). The Examiner asserts that it would have been obvious for a person of ordinary skill in the art to modify EP '991 by employing Murasawa's zirconium oxide-containing interlayer in EP '991 because Murasawa teaches that its first layer enables a firm connection between substrate and second layer.

However, modifying EP '991 by employing Murasawa's zirconium oxide-containing interlayer in EP '991 does not provide the claimed invention because Murasawa's zirconium oxide-containing interlayer is not an n-type semiconductor film. Instead, Murasawa's interlayer is a primer layer for improving an adhesive force. Any main purpose of Mur3

In particular, the adhesive of Murasawa's interlayer can be an organic adhesive, such as acrylic resins, epoxy resins, polyester resins, melamine resins, urethane resins, and alkyd resins, or it can be Murasawa's so-called "less degradative adhesive." Murasawa's interlayer may preferably contain as filler inorganic particles having no photocatalytic function, such as titanium

oxides, silicon oxides, aluminum oxide, magnesium oxide and the like, the surfaces of which are coated with silicon oxide, aluminum oxide, or zirconium oxide.

Organic adhesives, such as acrylic resins, epoxy resins, melamine resins, urethane resins or alkyd resins are insulating materials and are not n-type semiconductors. Silicon oxide, for example, exemplified as the inorganic filler is also classified within the class of insulating materials. Even if n-type semiconductor fillers are added to organic adhesive resins, particle spaces are cut by the organic adhesive, and as a result, n-type semiconductor characteristics are not exhibited.

Not only is Murasawa's zirconium oxide-containing interlayer not an n-type semiconductor film, but it must also be noted that Murasawa only discloses zirconium oxide as one option for an optional coating for its inorganic filler. Thus, even in the situation where Murasawa's interlayer contains zirconium oxide, it contains the zirconium oxide as a minor component (a coating of the inorganic filler). The vast majority of the interlayer would be comprised of the organic adhesive and inorganic filler. An organic adhesive layer containing an inorganic filler coated with zirconium oxide is not the presently claimed n-type semiconductor film consisting essentially of at least one metal oxide selected from the group consisting of niobium oxide and zirconium oxide.

In addition to the fact that combining EP '991 and Murasawa does not provide a primer layer comprising an n-type semiconductor film, a person of ordinary skill in the art would never have referred to Murasawa to modify EP '991. Murasawa is an invention directed to an adhesive, whereas EP '991 is an invention directed to two intermediate layers that regulate optical characteristics under a photocatalytic film. Murasawa provides an adhesive for securely adhering photocatalyst particles over a long period of time. On the other hand, in EP '991, a refractive index is important, and an intermediate layer is used for the purpose of conducting optical regulation.

For all of the foregoing reasons, Applicants respectfully request that the Examiner reconsider and withdraw the §103 rejections of claims 1-2 and 4-9.

RESPONSE

U.S. Appln. No. 09/630,777

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



L. Raul Tamayo
Registration No. 47,125

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE



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